

What is claimed is:

1           1.       A system, comprising:  
2           a connection to a virtual private network;  
3           a router, connected to said virtual private network, wherein said router  
4 maintains at least one virtual router for a client;  
5           at least one server;  
6           a virtual LAN switch, connected to said router, said virtual LAN switch  
7 providing selectable forwarding for information from said router to said at least one  
8 server;  
9           at least one volume;  
10          an FC switch, wherein said FC switch provides selectable interconnection  
11 between said at least one server and said at least one volume, so that information received  
12 from a plurality of sources via said virtual private network is directed to a particular  
13 virtual router for each of said sources by said router, and wherein said information is then  
14 directed to a particular server for each of said sources by said virtual LAN switch, and  
15 wherein said information is then directed to a particular volume for each of said sources  
16 by said FC switch.

1           2.     The system of claim 1, further comprising a virtual private network  
2 management system that controls operation of said router.

1                   3.       The system of claim 2, said virtual private network management  
2   system further comprising: a network interface module that receives commands from an  
3   integrated service management system, a service order processing module that analyzes  
4   and executes the commands, updates a table of virtual private network information, and  
5   sends new configuration information to said router through a control module.

1                   4.       The system of claim 2, said virtual service management system  
2 further comprising a virtual private network table, said virtual private network table  
3 having a VPN ID that identifies a specific VPN, an Address 1 and an Address 2 that hold  
4 IP addresses of two end points of said specific VPN, a Protocol that specifies a VPN  
5 protocol that is used on said specific VPN, an Internet that indicates whether access to  
6 public Internet is permitted, and a VLAN ID that is assigned to packets received over said  
7 specific VPN.

1                   5.     The system of claim 1, further comprising a server management  
2 system that controls operation of said virtual LAN switch.

1                   6.     The system of claim 1, further comprising a storage management  
2 system that controls operation of said FC switch.

1                   7.     The system of claim 1, further comprising an integrated service  
2 management system that controls operations.

1                   8.     The system of claim 7, said integrated service management system  
2 further comprising: a network interface module that receives requests to change  
3 configuration, a service order processing module that analyzes and executes requests to  
4 change configuration received by said network interface module, updates related table  
5 cache in a service management database, and sends new configuration information using  
6 said network interface module.

1                   9.     The system of claim 8, further comprising an operator console  
2 application that sends a request command to change service configuration to said  
3 integrated management system.

1                   10.    The system of claim 8, further comprising a customer portal  
2 application that sends a request command to change service configuration to said  
3 integrated management system.

1                   11.    The system of claim 8, said integrated service management system  
2 further comprising a service configuration table, said service configuration table having  
3 destination information.

1                   12.    The system of claim 8, said integrated service management system  
2 further comprising a server table, said server table having a server identification, an  
3 address, a virtual LAN identification, an application identification, an operating system  
4 identifier, and a CPU information.

1                   13.    The system of claim 8, said integrated service management system  
2 further comprising a storage table, said storage table having a volume identifier, a port  
3 identifier, a server identifier, a capacity identifier, and an access information.

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1           14.    The system of claim 8, said integrated service management system  
2 further comprising a service mapping table, said service mapping table having a customer  
3 identifier, a virtual private network identifier, a server identifier, and a volume identifier.

1           15.    The system of claim 8, said integrated service management system  
2 further comprising a service status table, said service status table having a customer  
3 identifier, a virtual private network status, a server status, and a volume status.

1           16.    A method for managing storage, comprising:  
2           receiving a request to change a configuration of an integrated storage and  
3 networking system;  
4           analyzing said request to determine a new configuration;  
5           updating configuration tables to reflect said new configuration; and  
6           sending new configuration information to at least one of a plurality of  
7 subsystem managers.

1           17.    A method for managing a configuration for a virtual private  
2 network, comprising:  
3           receiving at a subsystem manager a request to change to a new  
4 configuration for a virtual private network of an integrated storage and networking  
5 system;  
6           analyzing said request to determine a new configuration for said virtual  
7 private network of said integrated storage and networking system;  
8           updating configuration tables to reflect said new configuration; and  
9           sending commands to a virtual private network router to implement said  
10 new configuration.

1           18.    A method for managing a configuration for at least one of a  
2 plurality of servers, comprising:  
3           receiving at a subsystem manager a request to change to a new  
4 configuration for at least one of a plurality of servers in an integrated storage and  
5 networking system;  
6           analyzing said request to determine a new configuration for said at least  
7 one of a plurality of servers in said integrated storage and networking system;  
8           updating configuration tables to reflect said new configuration; and

9 sending commands to a virtual LAN switch to implement said new  
10 configuration.

1 19. A method for managing a configuration for at least one of a  
2 plurality of storage devices, comprising:  
3 receiving at a subsystem manager a request to change to a new  
4 configuration for at least one of a plurality of storage devices of an integrated storage and  
5 networking system;  
6 analyzing said request to determine a new configuration for said at least  
7 one of a plurality of storage devices of said integrated storage and networking system;  
8 updating configuration tables to reflect said new configuration; and  
9 sending commands to a fibre channel switch to implement said new  
10 configuration.

1 20. An apparatus, comprising:  
2 a connection to a virtual private network;  
3 a router, connected to said virtual private network, wherein said router  
4 maintains at least one virtual router for a client;  
5 at least one server;  
6 a virtual LAN switch, connected to said router, said virtual LAN switch  
7 providing selectable forwarding for information from said router to said at least one  
8 server;  
9 at least one volume;  
10 an FC switch, wherein said FC switch provides selectable interconnection  
11 between said at least one server and said at least one volume, so that information received  
12 from a plurality of sources via said virtual private network is directed to a particular  
13 virtual router for each of said sources by said router, and wherein said information is then  
14 directed to a particular server for each of said sources by said virtual LAN switch, and  
15 wherein said information is then directed to a particular volume for each of said sources  
16 by said FC switch.